

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>								DATE <b>February 1999</b>		
BUDGET ACTIVITY <b>4 - Demonstration/Validation</b>				PE NUMBER AND TITLE <b>0603851M Non-Lethal Warfare DEM/VAL</b>				PROJECT <b>C2319</b>		
COST <i>(In Thousands)</i>	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
C2319 Non Lethal Weapons Program	16073	34512	23277	23782	24237	24690	26584	27123	Continuing	Continuing
Quantity of RDT&E Articles										
<p><b>A. (U) <u>Mission Description and Budget Item Justification:</u></b>            This project covers non-lethal weapon (NLW) systems which are those systems that by their design, do not inflict fatal or permanent injuries. Instead, these systems are designed to stun, incapacitate, or hinder movement of individuals, crowds, or equipment. The availability of NLWs allows commanders less than lethal options, particularly in urban warfare and military operations other than war, i.e., peacekeeping, humanitarian assistance and disaster relief, as well as special operations.</p> <p><b>(U) <u>Justification for Budget Activity:</u></b> This program is funded under Demonstration/Validation because it develops and integrates hardware for non-lethal weapons capabilities.</p> <p><b>(U) <u>FY 1998 Accomplishments:</u></b></p> <ul style="list-style-type: none"> <li>• (U) \$ 961 Execution oversight and administration of the Joint NLW Programs and technologies database expansion.</li> <li>• (U) \$ 970 Evaluated Marine Corps and Army NL technologies including Kinetics, Foams, Unmanned air and ground vehicles, Parafoils, etc.</li> <li>• (U) \$ 1066 Modeling and Simulation of NLW in the Joint Conflict and Tactical Simulation (JCATS) model.</li> <li>• (U) \$ 728 Technology analysis of the NL Electro-Magnetic Pulser, Malodorous and Spider Fiber Technical Base Programs.</li> <li>• (U) \$ 584 Continued program definition/risk reduction on a NL round of munitions for the M203 40mm Grenade Launcher for crowd control and vehicle protection in the 10-30 meter range.</li> <li>• (U) \$ 1460 Acoustics – Focused on determining the bio-effects for target vulnerability and operator safety in the infrasound and audible acoustic regimes and established an initial database.</li> <li>• (U) \$ 1092 Modular Crowd Control Munitions – Program definition/risk reduction of a ground or vehicle mounted non-lethal “claymore” mine. This mine contains 600 rubber balls for blunt impact trauma for crowd control or site security.</li> <li>• (U) \$ 1016 Ground Vehicle Stopper - Evaluated several proposed electrical vehicle stoppers that will deliver electromagnetic radiation at high power levels to disrupt ground vehicle engine electronics.</li> <li>• (U) \$ 1016 Vessel Stopper System - Continued evaluation of NL means of stopping maritime vessels.</li> </ul>										
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- (U) \$ 965 Portable Vehicle Immobilizer System - Continued program definition and risk reduction of a ground emplaced system to stop a vehicle (up to 5100 pounds) traveling at speeds between 40-60 mph within 200 feet without harming the occupants.
- (U) \$ 1885 Active Denial Technology - Continued development of a HMMWV mounted directed energy system.
- (U) \$ 618 66mm NL Munitions - Continued development of 66mm vehicle launched munitions (stingball and flash-bang) for crowd control and site security missions.
- (U) \$ 582 UAV NL Payloads - Continued program definition and risk reduction of multiple NL munitions ejected from an ALE-47 Chaff/Flare Dispenser which is loaded into Unmanned Aerial Vehicles (UAVs).
- (U) \$ 918 Bounding NL Munitions - Continued program definition and risk reduction of several non-lethal bounding munitions that function similar to a tactical bounding anti-personnel mine, but with a NL payload. Used for area denial/perimeter defense system.
- (U) \$ 1225 Canister Launched Area Denial System - Continued program definition and risk reduction of fielding NL munitions launched from an aircraft/vehicle-mounted mine dispenser.
- (U) \$ 290 Foams - Evaluated rigid and slippery foams, which may be dispensed from a hand-held or shoulder-slung ruggedized dispenser for area denial, sealing building entrances and counter-material applications.
- (U) \$ 441 Vortex Ring Run - Continued development of combustion driven ring vortices that can be entrained with NL chemical or malodorant payloads that can be focused on specific individuals or crowds.
- (U) \$ 256 Under-barrel Tactical Payload Delivery System - Continued development and evaluation of an under-barrel NL weapons system capable of inflicting blunt trauma (stingball) for crowd dispersal and point target.
- (U)Total \$ 16,073

**(U) FY 1999 Planned Program:**

- (U) \$ 1813 Execution oversight and administration of the Joint NLW Program and technologies database expansion.
- (U) \$ 1606 Evaluation of NLWs by Service warfighting laboratories for direct user feedback on various NL technologies and munitions.
- (U) \$ 580 Continue modeling and simulation of NLW in the Joint Conflict and Tactical Simulation (JCATS) model.
- (U) \$ 2737 Continue pursuit of new technology through open competition of industry, academia and government lab sources for NL capabilities.
- (U) \$ 613 NL Crowd Dispersal Cartridge - Continue development and testing on a NL round of munitions for the M203 40mm Grenade Launcher.
- (U) \$ 3390 Acoustics - Continue development and evaluation of bio-effects on target vulnerability and operator safety in the infrasound and audible acoustic regimes and continue work on the database.
- (U) \$ 1376 Ground Vehicle Stopper - Continue evaluation of several proposed electrical vehicle stopper technologies that have potential to stop/slow ground vehicles.
- (U) \$ 1376 Vessel Stopper System - Continue evaluation of NL means of stopping maritime vessels.

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<ul style="list-style-type: none"> <li>• (U) \$ 3275 Studies and Analysis – Medical and NL casualty data collection; strategic planning; human effects assessments; and technical studies/analysis of emerging technologies for possible NL application.</li> <li>• (U) \$ 1305 Area Denial – Explore and develop technical NL solutions to anti-personnel landmines.</li> <li>• (U) \$ 1950 Portable Vehicle Immobilizer System - Continue development and testing of a pre-emplaced system to stop a vehicle (up to 7500 pounds) traveling at speeds up to 45 mph.</li> <li>• (U) \$ 6725 Active Denial Technology – Continue product definition and risk reduction of a HMMWV mounted directed energy system.</li> <li>• (U) \$ 2477 66mm NL Munitions - Continue development and testing of 66mm vehicle launched munitions.</li> <li>• (U) \$ 56 UAV NL Payloads - Continue integration of non-lethal payloads into Unmanned Aerial Vehicles (UAVs).</li> <li>• (U) \$ 1712 Bounding NL Munitions – Continue development of non-lethal bounding munitions to serve as an area denial/perimeter defense system.</li> <li>• (U) \$ 1143 Canister Launched Area Denial System - Further development of NL munitions launched from an aircraft/ vehicle-mounted mine dispenser.</li> <li>• (U) \$ 816 Foams - Continue evaluation and testing of foams and packaging delivery platforms.</li> <li>• (U) \$ 935 Modular Crowd Control Munitions (MCCM) – Continue evaluation and testing of a ground or vehicle mounted NL “claymore” mine.</li> <li>• (U) \$ 267 Joint Intergration Project (JIT) – Select and test commercial products that will meet the Joint Services’ requirement for specific NL capability set items.</li> <li>• (U) \$ 360 Small Business Inovation Research Assessment portion of program reserved.</li> <li>Total \$ 34512</li> </ul>	<p><b>(U) FY 2000 Planned Program:</b></p> <ul style="list-style-type: none"> <li>• (U) \$ 792 Execution oversight and administration of the Joint NLW Program and technologies database expansion.</li> <li>• (U) \$ 1480 Evaluation of NLWs by Service warfighting laboratories for direct user feedback on various NL technologies and munitions.</li> <li>• (U) \$ 700 Continue modeling and simulation of NLW in the Joint Conflict and Tactical Simulation (JCATS) model and performance effects data collection.</li> <li>• (U) \$ 1800 Continue pursuit of new technology through open competition of industry, academia and government lab sources for NL capabilities.</li> <li>• (U) \$ 659 NL Crowd Dispersal Cartridge – Test and demonstrate of the NL round of munitions for the M203 40mm Grenade Launcher.</li> <li>• (U) \$ 108 Acoustics – Continue evaluation on target vulnerability and operator safety in the infrasound and audible acoustic regimes.</li> <li>• (U) \$ 1200 Ground Vehicle Stopper - Continue evaluation of proposed electrical vehicle stopper options.</li> <li>• (U) \$ 1200 Vessel Stopper System - Continue development and evaluation of NL means of stopping maritime vessels.</li> <li>• (U) \$ 5200 Active Dentinal Technology - Continue development and evaluation of a HMMWV mounted directed energy system.</li> <li>• (U) \$ 1911 66mm NL Munitions – Testing of the 66mm vehicle launched munitions for crowd control and site security missions.</li> <li>• (U) \$ 108 UAV NL Payloads - Continue development of the integration of non-lethal payloads into Unmanned Aerial Vehicles (UAVs).</li> </ul>	
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- (U) \$ 540 Bounding NL Munitions - Continue development of NL bounding munitions.
- (U) \$ 1674 Canister Launched Area Denial System –Continue development of NL munitions launched from an aircraft/vehicle-mounted mine dispenser.
- (U) \$ 1017 Foams - Continue development of two foam systems; specifically integration of foams into delivery platform.
- (U) \$ 1000 Studies and Analysis – Medical and NL casualty data collection; strategic planning; human effects assessments; and technical studies/analysis of emerging technologies for possible NL application.
- (U) \$ 1000 Area Denial – Continue to explore and develop technical NL solutions to anti-personnel landmines.
- (U) \$ 325 JIP – Continue to select and test commercial products that will meet the Joint Services' requirement for specific NL capability sets items.
- (U) \$ 800 Advanced Kinetic NL Weapons/Munitions – Development and evaluate of NL weapons/munitions that will provide a capability to precisely deliver NL payloads with an air burst capability.
- (U) \$ 664 Develop and evaluate new RDT&E NLW technology initiatives.
- (U) \$ 693 Modular Crowd Control Munitions (MCCM) – Continue evaluation and testing of a vehicle mounted NL “claymore” mine.
- (U) \$ 406 Running Gear Entanglement System (RGES) – Development of a non-lethal entanglement capability to stop small, fast moving boats.
- Total \$ 23,277

### B. (U) Project Change Summary

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>
(U) Previous President's Budget	16290	22,592	23,636
(U) Adjustments to Previous President's Budget (Taxes)	-217	+11920	-359
(U) Current Budget Submit	16073	34512	23,277

### (U) Change Summary Explanation:

(U) Funding: The FY98 decrease of (\$217) is the result of a decrease of (\$214) by Pre-review and (\$3) MARCORSYSCOM Deputy For Management (DFM) adjustment. The FY99 increase is due to a Congressional plus-up \$12M and a decrease of (\$80) Revised Economical Assumption. The FY00 decrease of (\$359).

(U) Schedule: N/A

(U) Technical: N/A

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C. (U) Other Program Funding Summary	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To	Total
(APPN, BLI,NOMEN)								<u>Complete</u>	<u>Cost</u>
PAN,MC, BLI 166300, Items < \$2M	1906	0	0	0	0	0	0	0	3806
PAN,MC, BLI 162800, Non-Lethals	0	1956	984	2000	2700	2079	4136	Cont	Cont.
PAN, MC, BLI 221200, Non-Lethals Warfare (OOTW) PMC	0	0	0	1498	1400	1200	1192	Cont.	Cont.

**D. (U) Schedule Profile N/A**

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# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

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## A. (U) Project Cost Breakdown

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>
Product Development	15112	27981	19943
Support and Management	961	6531	3334
Total	16073	34512	23277

## B. Budget Acquisition History and Planning Information

### Performing Organizations

Contractor or Government	Contract Method/Type	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1998	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	Budget to Complete	Total Program
<b>Product Development Organizations</b>										
USAIC, Ft. Benning, GA	MIPR	Oct 97			1000	500	846	740	Cont	Cont
MCWL, Quantico, VA	WR	Apr 98			0	500	760	740	Cont	Cont
ARDEC, Picatinny, NJ	MIPR	Oct 97			6507	9100	14901	9455	Cont	Cont
NSWC, Various	WR	Oct 97			2423	1612	1432	1308	Cont	Cont
Brooks AFB, TX	MIPR	Oct 97			1705	1900	6725	5200	Cont	Cont
JWFC, Ft. Monroe, VA	MIPR	Mar 98			0	300	250	300	Cont	Cont
Various (M&S)	WR	Oct 97			640	550	330	400	Cont	Cont
Various (TIP)	MIPR	Oct 97			0	650	2737	1800	Cont	Cont

### Support and Management Organizations

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